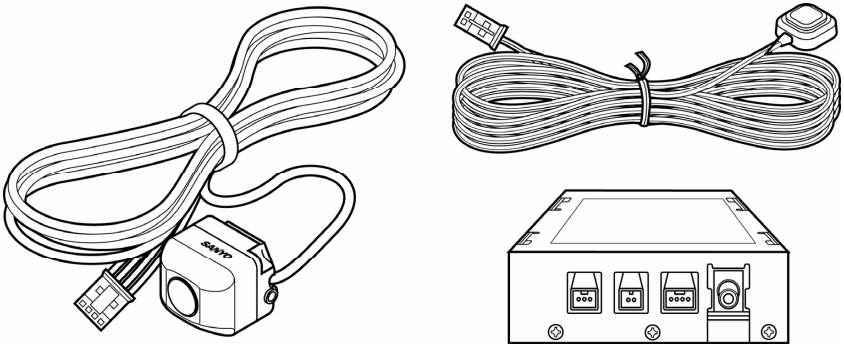
SANYO

INSTRUCTION MANUAL

CCA-BC200

Rear View Back up Camera System



⚠CAUTION

- Installation and wiring require technical expertise and experience. To ensure proper installation and safety, consult the dealer where the product was purchased.

SANYO'S HELP-LINE

Call the toll-free number below if you have any difficulties operating this product.
1-800-421-5013 (Weekdays 7:30 AM – 5:00 PM, Pacific Time)

REAR VIEW BACK UP CAMERA SYSTEM
MODEL CCA-BC200 LIMITED WARRANTY

FOR SERVICE ASSISTANCE,CALL
Customer Information 1-800-421-5013
Weekdays 7:30 AM-5:00 PM Pacific Time

THIS WARRANTY IS VALID ONLY ON SANYO PRODUCTS PURCHASED AND USED IN THE UNITED STATES OF AMERICA.

THIS WARRANTY APPLIES ONLY TO THE ORIGINAL RETAIL USER, AND DOES NOT APPLY TO PRODUCTS USED FOR ANY INDUSTRIAL, PROFESSIONAL OR COMMERCIAL PURPOSE. THE ORIGINAL DATED BILL OF SALE OR SALES SLIP MUST BE SUBMITTED AT THE TIME WARRANTY SERVICE IS REQUESTED.

Subject to the OBLIGATIONS above and EXCLUSIONS below, SANYO FISHER COMPANY (SFC) warrants this SANYO product against defects in materials and workmanship for the periods of LABOR and PARTS specified below. SFC will repair or replace (at its option) the product and any of its parts which fail to conform to this warranty with new or reconditioned products or parts. The warranty period commences on the date the product was first purchased at retail.

LABOR	PARTS
1 YEAR	1 YEAR

EXCLUSIONS

This warranty does not cover (A) the adjustment of customer-operated controls as explained in the appropriate model's instruction manual, or (B) the repair of any product whose serial number has been altered, defaced or removed.

This warranty shall not apply to the cabinet or cosmetic parts, antenna, knobs, batteries or routine maintenance.

This warranty does not apply to uncrating, setup. installation, and removal of the product for repair or reinstallation of the product after repair.

This warranty does not apply to repairs or replacements necessitated by any cause beyond the control of SFC including, but not limited to, any malfunction, defect or failure caused by or resulting from unauthorized service or parts, improper maintenance, operation contrary to furnished instructions, shipping or transit accidents. modification or repair by the user, abuse, misuse. neglect, accident, incorrect power line voltage, fire, flood or other Acts of God, or normal wear and tear.

The foregoing is in lieu of all other expressed warranties and SFC does not assume or authorize any party to assume for it any other obligation or liability.

THE DURATION OF ANY WARRANTIES WHICH MAY BE IMPLIED BY LAW (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS) IS LIMITED TO THE TERM OF THIS WARRANTY. IN NO EVENT SHALL SFC BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM OWNERSHIP OR USE OF THIS PRODUCT, OR FOR ANY DELAY IN THE PERFORMANCE OF ITS OBLIGATIONS UNDER THIS WARRANTY DUE TO CAUSES BEYOND ITS CONTROL.
SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OR LIMITATION OF CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE.

For your protection in the event of theft or loss of this product, please fill in the information below for your own personal records.

Model No. _____

Serial No. _____
(Located on back or bottom side of unit)

Date of Purchase _____

Purchase Price _____

Where Purchased _____

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SAFETY PRECAUTIONS

<Safe and correct use of the product>

- Before using the rear view back up camera, read this instruction manual for proper use of the product as directed.
- Sanyo and its suppliers are not responsible for damage or malfunction that arises from the failure to follow the instructions in this manual. Please be aware that the manufacturer's warranty may be invalid if the procedures in this instruction manual are not followed properly.
- After using this instruction manual, store it in a place where it can be easily located.

⚠ **WARNING**	A WARNING indicates a situation in which serious injury or death could result if the warning is ignored.
⚠ **CAUTION**	A CAUTION indicates a situation in which bodily injury or damage to objects, or both, could result if the caution is ignored.

⚠ WARNING

- Be sure to disconnect the negative battery terminal when wiring.
  Electrocution or injury due to a short circuit could occur.
- This Rear View Back up Camera System is for exclusive use with DC 12V, negative ground vehicles. Do not use this Rear View Back up Camera System on DC 24V vehicles (such as trucks, buses). A fire or other damage could occur.
- Do not install this Rear View Back up Camera System in a location that blocks the rear view, or obstructs the operation of the steering wheel, shift selector lever, or brake pedal when driving, or jeopardizes the safety of other passengers. Otherwise, an accident or injury could occur.

- When installing this Rear View Back up Camera System to a vehicle equipped with air bags (The name differs depending on the manufacturer, such as SRS dual air bag, SRS side air bag, SRS curtain air bag), do not install this Rear View Back up Camera System or route its wiring where it affects operation of the air bag system. If the air bags do not operate properly in an emergency, an accident or injury can occur. (Consult the dealer where the product was purchased to determine the installation position, keeping safety in mind.)
- Do not use any cables other than ones provided with this Rear View Back up Camera System. Do not modify the cables.
- If installing this Rear View Back up Camera System or connecting the ground using the vehicle nuts and bolts, never use nuts and bolts from critical parts of the vehicle such as the steering wheel, brake system, and fuel tank. Vehicle control may become inoperative, or a fire could occur.
- When drilling holes into the vehicle body to install this Rear View Back up Camera System, check the locations of pipes, tanks, and electrical wiring so that this Rear View Back up Camera System will not interfere with them. Otherwise, a fire or other malfunction could occur.
- Be sure to bundle cables so that they do not obstruct driving. Loose cables which become entangled in the steering wheel, shift selector lever, or brake pedal may cause an accident.
- Do not splice the cable to connect the power supply to other devices.
- After completing the installation and wiring, make sure the brake lights, lights, horn, turn signals, wipers, and other electrical components operate properly. Otherwise, an accident could occur.
- Do not disassemble or modify the Rear View Back up Camera System. Disassembly prohibited. It could result in an accident, fire, or electrocution.If foreign material has penetrated the Rear View Back up Camera System or liquid has spilled onto it, which may produce smoke, foul odor, or abnormal noise, discontinue use immediately and always consult the dealer where the Rear View Back up Camera System was purchased. If the Rear View Back up Camera System continues to be used, it could result in an accident, fire, or electrocution.
- If power to the power cable has been cut or a fuse has blown, verify that the cable has not been shorted, and replace any blown fuses with a new fuse of the same current rating. (Ampere is displayed on the fuse.) If a non-specified fuse is used, a fire or malfunction could occur.
- Be sure to route wiring so that it does not come into contact with heated parts. Otherwise, the wire covering will melt and cause a short, resulting in a fire or electrocution.
- Do not use this Rear View Back up Camera System if it appears damaged such as when there is no display or sound output. Otherwise, it could result in an accident, fire, or electrocution.
- Do not touch this Rear View Back up Camera System during extreme weather conditions such as thunder and lightning. Otherwise, it could result in electrocution.

⚠ CAUTION

- Installation and wiring requires technical expertise/experience. To ensure safety, consult the dealer where the Rear View Back up Camera System was purchased.
- Be sure to use the Rear View Back up Camera System in the specified manner. If a non-specified part is used, the internal parts of the Rear View Back up Camera System can be damaged or detach because of improper attachment, resulting in an accident.
- Do not install the ECU box to a location where rain, moisture, or dust can penetrate. If water, moisture, or dust penetrates the ECU box, it may cause fire or smoke.
- Do not install the ECU box where heat is retained such as under a carpet. Heat from the ECU box cannot be dissipated, causing a fire, malfunction, or deterioration.
- Wire the cable so that it does not touch any metallic areas. The cable could be damaged from contact, causing a fire or electrocution.

- Route wiring properly according to the instructions. An incorrect connection might cause a fire or accident.
- Be careful and prevent the wiring harness from being pinched between the vehicle body, screws, or moving parts such as the seat rails. It could cause an accident, electrocution, or fire due to an open or short circuit.
- The Rear View Back up Camera System is for in-car use only and is not to be used outside of the vehicle. If it is used outside of the vehicle it could result in electrocution or other injury.
- Install the camera on the vehicle during sunny, daytime hours. If installed in rainy or foggy weather, high humidity will weaken the adhesion strength of the double-sided adhesive tape, and the camera may fall off, resulting in an accident or injury.
- Avoid moisture such as water, rain, fog, snow or applying excessive force to the camera for 24 hours after installation. The adhesion strength of the double-sided adhesive tape will weaken and the camera may fall off, resulting in an accident or injury.
- Be careful when handling the double-sided adhesive tape. Touching the sticky surface of the tape or re-attaching the bracket weakens the adhesion strength. The bracket may fall off, resulting in an accident or injury.
- This Rear View Back up Camera System has been designed to assist the driver in confirming the rear view when backing up the vehicle into a garage or when parallel parking. For safety reasons, it is important for the driver to take extra precautions when backing up.

SPECIFICATION

- Power Supply ····· DC 12 V (DC 11 V to DC 16 V) Negative ground
- Max. Consumption Ampere ····· Approx. 300mA
- Viewing System ····· Mirror Image* (for vehicle reversing)
- Imaging Device ····· Color CCD, ¼”
- Number of Pixels ····· Total: 270 K pixels. Effective: Approx. 250 K pixels
- Viewing Angle ····· Horizontal: Approx. 135 degrees, Vertical: Approx. 105 degrees (Standard rear view is displayed)
- Min. Required luminance ····· Approx. 1.6 lx
- Output Signal ····· 1Vp-p (75 ohm, NTSC), RCA-type socket
- Operation Temperature ····· -4˚F to +140˚F
- Storage Temperature ····· -22˚F to +176˚F
- Camera Dimensions ····· W1.1” x H0.9” x D1.0” (without protrusions)
- ECU Dimensions ····· W3.4” x H1.1” x D2.6” (without protrusions)
- Camera Weight ····· Approx. 0.35lbs (including cable)
- ECU Weight ····· Approx. 0.37lbs

*Mirror image: The camera produces an image on the screen with the left and right appearing reversed the same as when looking into the rear view mirror or the door mirrors.

- Specifications may change at any time without prior notification.

BEFORE USING THE REAR VIEW BACK UP CAMERA SYSTEM

Regarding methods of use

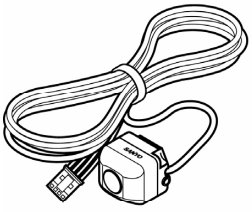
- The Rear View Back up Camera System is a devise designed only to assist the driver. The driver must take full precautions to confirm the safety and conditions around the vehicle.
- Water droplets on the camera lens could adversely affect the image.
- The positioning appearing on the screen changes according to the vehicle conditions (number of occupants and weight of cargo). Always directly confirm the safety of the rear of the vehicle and its surroundings visually while operating the vehicle.
- Never reverse the vehicle while looking only at the image appearing on the screen. Always confirm the safety of the rear of the vehicle and its surrounding by using both the rear view mirror and the door mirrors in combination with the rear view camera.
- The actual position and distance of persons or objects appearing on the screen may differ depending on the properties of the camera lens.

Regarding use

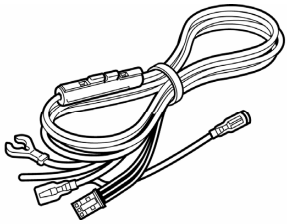
- Do not knock the camera or allow it to be hit forcefully by an object. Otherwise, it could result in the camera being damaged.
- Exposing the camera lens to extreme temperature change via a direct flame, hot drier or hot water could break or damage the camera lens.
- Do not allow the camera lens to capture images of direct sunlight for long periods of time. Otherwise it could leave permanent impressions on the screen.
- The screen image could distort at the moment the rear view image is displayed (differs depending on the monitor model connected to the system). The image will stabilize soon afterwards.
- If the system is used for a long period of time, white streaks and lines will appear due to increased temperature, however, because of the CCD properties the system will not be damaged.
- Screen flicker may occur while in fluorescent-lit areas utilizing 50 Hz power supplies, however, this will not cause damage to the system.
- Do not wipe the camera unit and lens area, installation bracket, or camera cable with volatile chemicals or cleaning agents containing alcohol, benzene, thinner, or gasoline. Use of these chemicals or cleaners will cause deformation, deterioration or damage to the system.
- Do not wipe any part of the system with cleaners containing polishing or abrasion agents as they will cause scratching.
- If the lens becomes soiled, wipe lightly with a soft, clean cloth soaked in water. Wiping with excessive force using a dry cloth could cause scratching.
- Do not scratch or nick the camera cable. Water or moisture penetrating the camera via a crack or opening in the camera could cause electrocution, fire, or other irreparable damage.
- If the vehicle is to be washed with the camera installed, avoid water directly contacting the cable area to prevent water from penetrating into the vehicle cabin.
- Do not allow highly pressurized water from automatic car washing machines or high-pressure car washers to contact the camera unit. Otherwise, the camera could fall off, or water could penetrate the camera unit due to an inability to maintain a waterproof seal, which could result in electrocution, fire, or other irreparable damage.
- Inspect the camera and cables periodically. Verify that the installation screws have not become loose, or the installation bracket is not separating from the installation surface. Tighten any loose screws. If the camera falls off and hits a pedestrian it could result in an accident or injury.
- If direct sunlight or strong light (sunlight reflected from the bumper, or headlights) is directed at the camera lens, it could cause fluctuations in the light source and vertical lines (streaks) to appear on the screen, however, this does not indicate a malfunction or damage.

ACCESSORIES AND HARDWARE

Make sure all the following parts are included in the Rear View Back up Camera System kit.

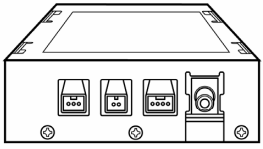


Rear view camera……1 pc.
(with approx. 26.2 ft. long cable)

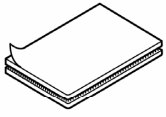


Power supply cable……1 pc.
(approx. 4.92 ft. long, with fuse)

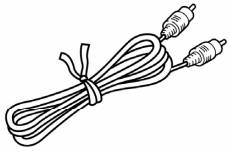
Control switch cable…….1 pc.
(approx. 8.20 ft. long,
with double sided tape)



ECU box…….....…1 pc.
(Electronic Control Unit box)



Hook-and-loop fastener…1 set
(for ECU box)

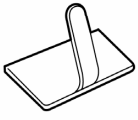


Video output cable……1 pc.

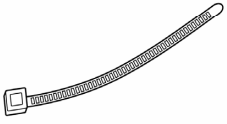
Bracket (for camera)…1 pc.
(with double sided tape)

Screw (for camera)…2 pcs.
(Hexagon type, M3 x 6)

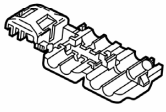
Hexagon wrench…1 pc.



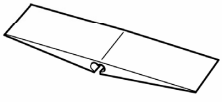
Cable clamp…10 pcs.



Cable tie……2 pcs.

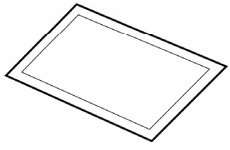


Self-lock conductor… 1 pc.
(for reverse signal detection)



Waterproof pad…1 pc.

Double sided tape… 1 pc.
(for waterproof pad)



Cleaning cloth… 1 pc.

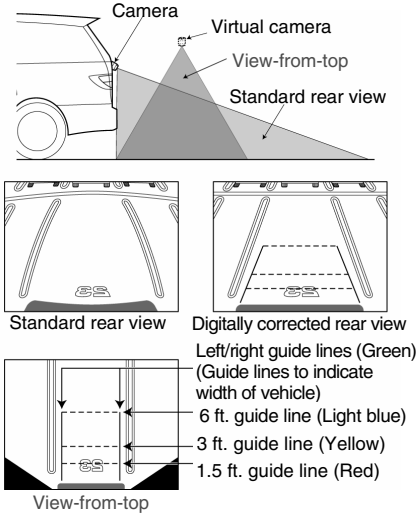
Instruction manual… 1 pc.
(with warranty)

Alignment guide…… 1 pc.

REAR VIEW BACK UP CAMERA SYSTEM OUTLINE

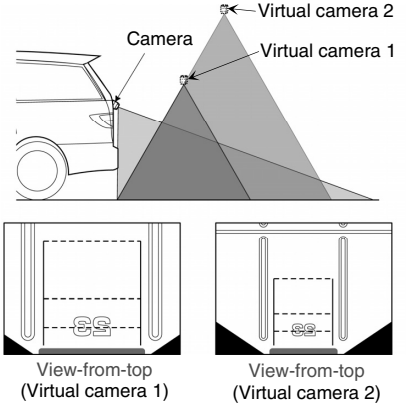
Display mode

Including the standard rear view image captured by the camera, a digitally corrected rear view, view-from-top, and standard rear view can be selected. Guide lines are indicated in order to assist the driver and assure safety when backing up.



View-from-top height alignment

The view-from-top height can be set by alignment of the virtual camera. (For alignment process, refer to Step 3 on page 20.)

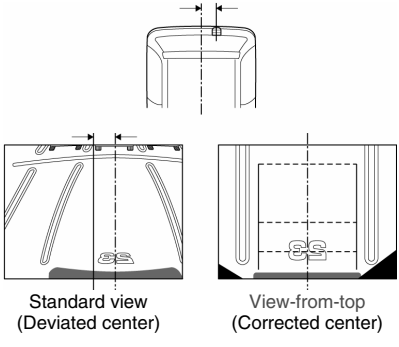


Offset Calibration

If the camera is not installed in the center rear of the vehicle, the offset can be corrected using the alignment function.

Need help? Call

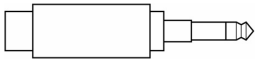
1-800-421-5013



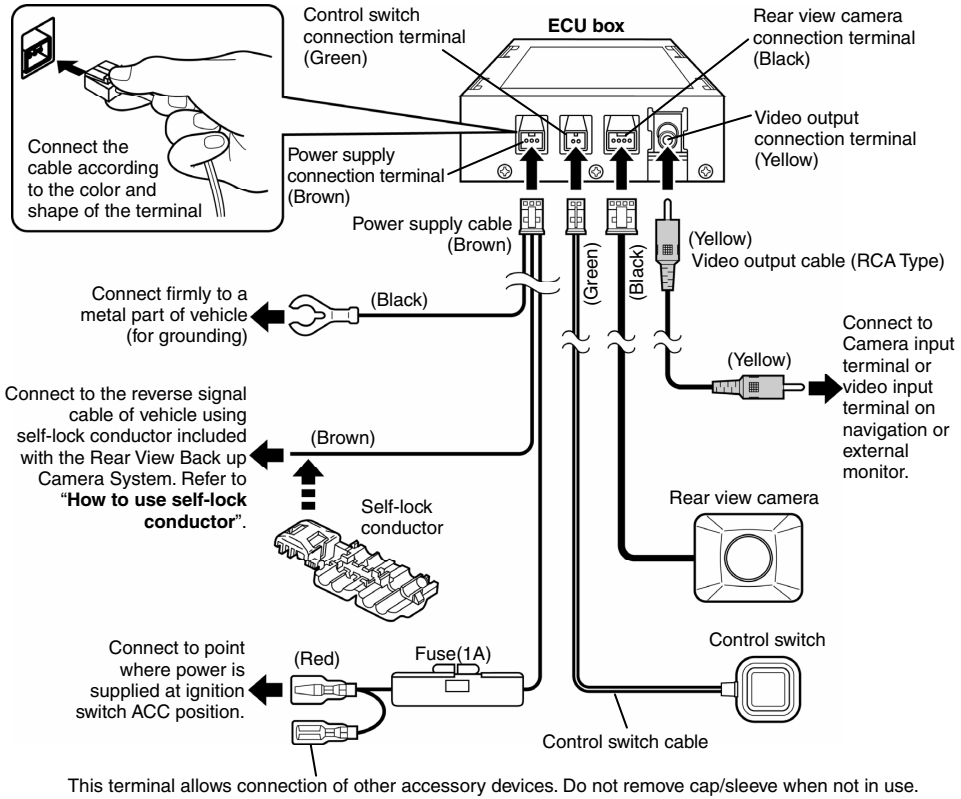
CAUTIONS FOR CONNECTION

⚠ CAUTION

- Before connecting, disconnect the negative battery terminal. Connect the negative battery terminal after all other connections are completed.
- Connection terminals and cables are differentiated by color. Make connections to the same colors. Make sure connectors are securely inserted until a click sound is heard. Incomplete connection may cause a distorted picture or operation errors.
- Before disconnecting the connector, turn the ignition switch to the off position. Otherwise, it may cause a malfunction. When disconnecting the connector, hold the connector itself to remove it while pressing the connector lock. If the cable is pulled, it may come off, causing a malfunction.
- Do not splice the power supply cable to connect it to the power source of other devices. A fire or electrocution could occur due to excess current flow on the power cable.
- Always connect the red lead wire of the power supply cable to the accessory (ACC) power supply.
  * Do not connect this Rear View Back up Camera to the power supply for the camera, which some navigation systems are equipped with.
- Connect the brown lead wire to the signal line which switches from 0 V to 12 V when the shift lever is shifted to R (reverse).
- If a small plug socket input monitor is used, a commercially-available adapter is required to convert it to a pin plug. The adapter can be purchased at an electric appliance shop.



CONNECTION


Control switch connection terminal (Green)
ECU box
Rear view camera connection terminal (Black)
Video output connection terminal (Yellow)
Connect the cable according to the color and shape of the terminal
Power supply connection terminal (Brown)
Power supply cable (Brown)
(Green)
(Black)
(Yellow)
Video output cable (RCA Type)
Connect firmly to a metal part of vehicle (for grounding)
(Black)
Connect to Camera input terminal or video input terminal on navigation or external monitor.
(Yellow)
Connect to the reverse signal cable of vehicle using self-lock conductor included with the Rear View Back up Camera System. Refer to "How to use self-lock conductor".
(Brown)
Self-lock conductor
Rear view camera
Control switch
Connect to point where power is supplied at ignition switch ACC position.
(Red)
Fuse(1A)
Control switch cable
This terminal allows connection of other accessory devices. Do not remove cap/sleeve when not in use.

⚠ CAUTION

- Installation and wiring require technical expertise and experience. To ensure proper installation and safety, consult the dealer where the product was purchased.

Notes

- *Always use the same type of fuse with the same current rating when replacing it.*
- *When connecting to a navigation system or an external monitor, also refer to the manual provided with the unit.*
- *Depending on the type of vehicle or navigation system, the rear view back up camera system may not function as expected. Consult the dealer where the product was purchased.*

BEFORE INSTALLATION

Rear View Back up Camera System Installation Cautions

- Bundle cables with tape or string so that they do not obstruct driving. Cables that become entangled in the steering wheel, shift selector lever or brake pedal could cause an accident.
- Peel off the paper backing from the tape on the camera bracket and firmly attach the bracket to the surface of the vehicle. If the tape is not completely adhered to the surface, the camera bracket might become loose and fall off.
- When mounting the camera onto the glass surface, make sure the rear wiper does not hit the camera while it operates. Otherwise, the camera could be damaged or destroyed.
- Install the camera so that it does not obstruct the opening or closing of the liftgate.
- Installing the camera in a position that obstructs vision is dangerous and could cause an accident. Install the camera so that it does not obstruct the rear view or vehicle operation, and make sure it does not protrude beyond the sides of the vehicle.
- To assure that the camera remains firmly attached to the vehicle:
  a) Do not install the rear view back up camera system outdoors in rainy or foggy weather. High humidity will prevent the camera from firmly adhering to the vehicle.
  b) If installation is required in areas of high humidity, completely dry the surface where the camera installation bracket is to be installed.
  c) If the temperature where the camera installation bracket is to be installed is low (68˚F or lower), warm the location with a hair dryer so that the tape will adhere firmly to the surface. Do not apply heat to the camera or the lens.
  d) Do not install on a vehicle body or glass window with a surface that has been processed with a fluorine resin coating.
- The vehicle can be driven immediately after installation as long as the following DO NOT occur within a 24-hour period:
  a) Water is poured on the vehicle surface.
  b) The vehicle is driven in the rain.
  c) Pulling or excessive force is applied to the camera.

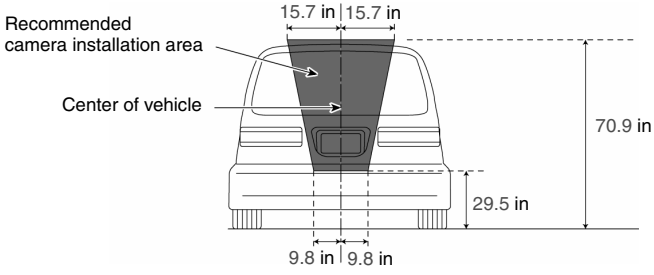
Notes

- *Temporarily hook up the system, confirm that the system functions properly, and then install it permanently.*
- *If the system does not function properly, re-check the connections.*

Determination of Camera Installation Position (example)

- Temporarily adhering the camera with the tape, locate a suitable installation position by adjusting the camera angle so that the rear of the vehicle (bumper and other areas) is visible in the monitor.
- Install the camera in a position that does not allow the illumination of a high-mount brake light to reflect into the camera lens.
- Make sure the camera does not contact or rub against the vehicle body when the rear door opens or closes.
- Removing and re-adhering the bracket will weaken the adhesion strength.
- Position the camera so that it is not aimed directly at the headlights of rear-oncoming vehicles.

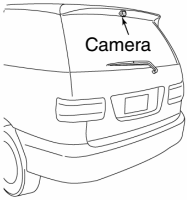
The recommended installation area is shown below:
Installing the camera outside of this area could result in reduced camera functionality and reduced rear-view visibility.



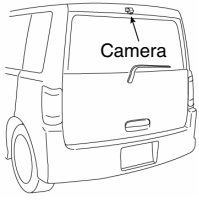
- **Installing the camera on the rear spoiler or liftgate. (example)**

Need help? Call
1-800-421-5013

<Rear spoiler>



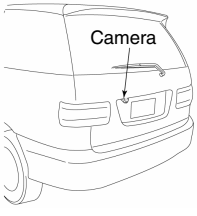
<Liftgate>



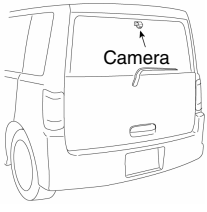
Note

- *The camera can also be installed in the taillight/license plate area or on the rear window.*

< Taillight/license plate area >

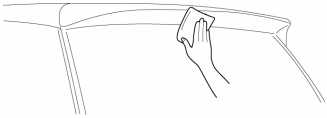


< Rear window >



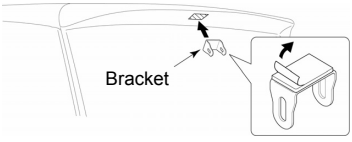
INSTALLATION

Installing system on rear spoiler



1. Clean the location where the camera is to be installed. Wipe off oil, wax, moisture, dirt and dust using a cleaner and a clean cloth.

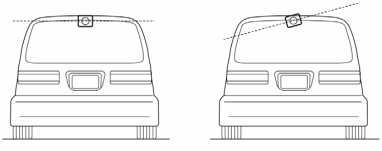
2. Peel off the paper backing from the tape on the camera bracket and firmly attach the bracket to a flat surface on the rear spoiler.
   Press the bracket with a finger to assure good contact of the bracket to the surface of the vehicle. Touching the sticky surface of the tape with a finger or re-adhering the bracket will weaken the adhesion strength and result in a loose installation that could eventually fall off.



- If the temperature where the camera bracket is to be installed is low, warm the area with a hair dryer so that the tape adheres firmly to the surface. Do not apply heat to the camera or the lens.

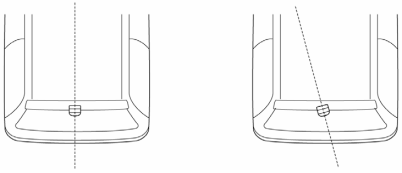
⚠ CAUTION

- Mount the camera level with the vehicle and ground surface.



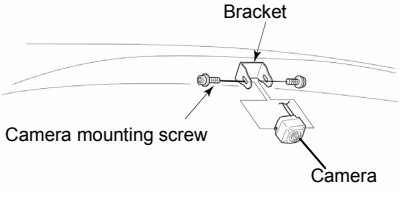
OK **NG**

- Position the lens axis of the camera square to the vehicle in order to obtain a correct rear view.



OK **NG**

3. Install the camera to the bracket using the screws. Install the camera (SANYO logo facing upward) using the hexagon wrench included in the product package.



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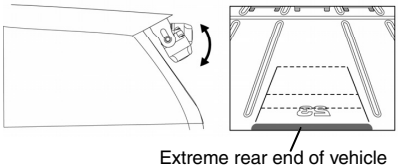
4. Adjust the camera angle so that the extreme rear end of the vehicle (bumper, rear window, and liftgate.) is displayed at the bottom of the monitor.



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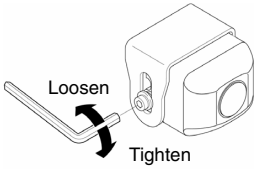
- After adjusting the angle, tighten the screws with them seated at the lower end of the oblong holes in the bracket on each side.

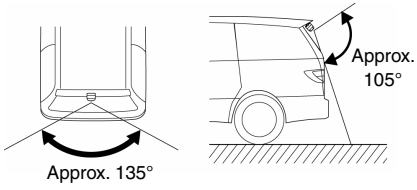


⚠ CAUTION

- Verify the tightness of the screws and tighten them more if necessary.

⚠ CAUTION

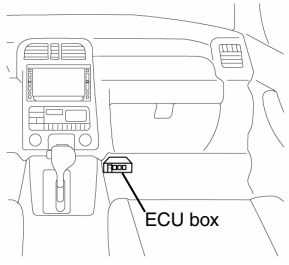
- After installing the camera, the screen displays an approximate 135-degree view between the left and right, and an approximate 105-degree view between up and down. The rear view back up camera system is a device designed only to assist the driver. The driver must take full precautions to confirm the safety and conditions around the vehicle.



5. Locate a position to install the ECU box where all the cables are within connection reach.

⚠ CAUTION

- Avoid installing near the ventilators for the heater.

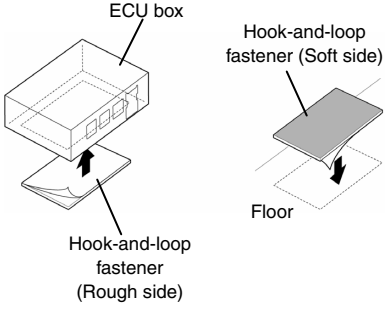


6. Peel off the paper backing from the Hook-and-loop fastener (1 set.), adhere each piece to the bottom of the ECU box, and install the ECU box in the position determined in Step 5.

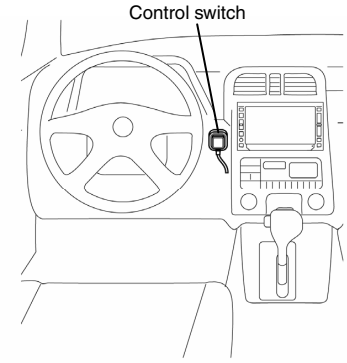
Note

- *There are separate surfaces for each piece of Hook-and-loop fastener. Attach the rough surface to the bottom of the ECU box, and the soft surface to the location where the ECU box is to be installed.*

- If the rough surface of the Hook-and-loop fastener attached to the bottom of the ECU box adheres to floor without need for the mating piece, attach the ECU box directly to the vehicle floor without using the mating piece.



7. Install the control switch in a position where it is easy to operate.
   Peel off the paper backing on the back of the control switch and attach it to a suitable position.

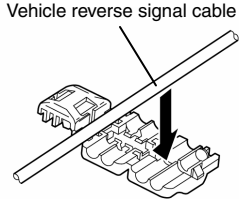


⚠ CAUTION

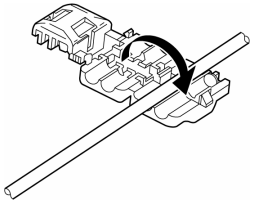
- Do not install the control switch in a position that obstructs vehicle operation.

How to use self-lock conductor

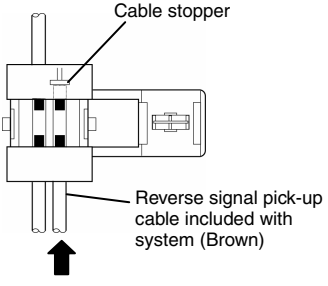
1. Insert the reverse signal cable of the vehicle into the self-lock conductor.



2. Fold the self-lock conductor and lock the reverse signal cable.



3. Insert the reverse signal pick-up cable (Brown) included with the system into the self-lock conductor.
   *Insert the cable until it stops.



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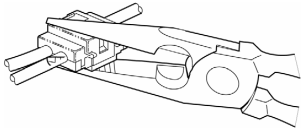
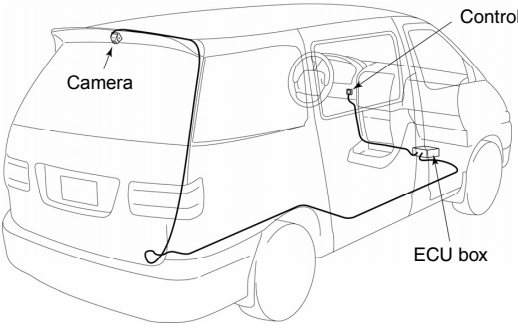
4. Close the self-lock cover and firmly lock it by pinching it with pliers.



CABLE ROUTING

The following is an example when installing the camera on the rear spoiler.



⚠ CAUTION

- Route the cable so that it does not block or obstruct vehicle operation.
- Route the rear view camera cable as far away from the vehicle antenna as possible to prevent noise interference with AM radio band reception. Also, route the cable as far as possible from a TV antenna, if equipped.
- Clean the areas where the cable clamps and waterproof pad are to be attached. Wipe out oil, wax, moisture, dirt and dust with a cleaner and a clean cloth.

1. Route the camera cable along the top of the liftgate and secure the cable with the cable clamps included with the Rear View Back up Camera System. Straighten the cable along the top of the spoiler (or liftgate) and insert it through the opening at the side of the liftgate.
   - Give the cable some slack to enable smooth opening and closing of the liftgate.

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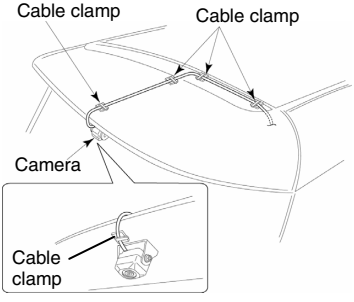
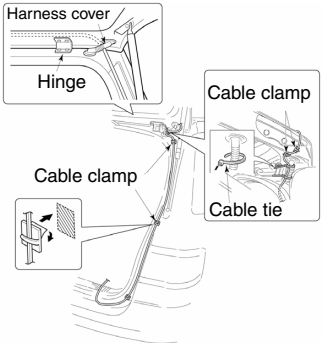
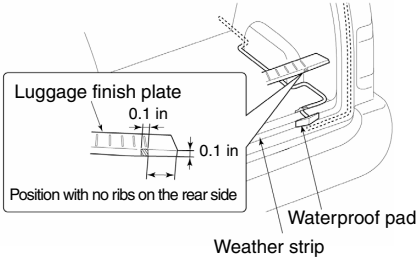
2. Route the camera cable down to the lower part of the liftgate and secure it with the cable clamps. Route the cable to the outside of the liftgate hinge and harness cover.
   - Route the cable carefully so that the cable is not pinched when the door opens and closes.
   - Route the cable carefully to prevent water penetration.





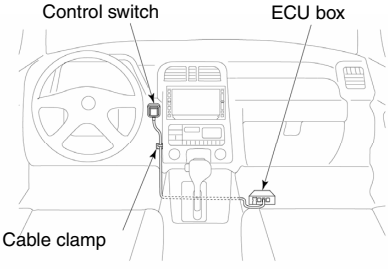
3. Route the camera cable to the ECU box positioned inside the vehicle and clamp it using the cable clamps.
   Insert the cable into the slit provided in the waterproof pad and attach the waterproof pad to the weather strip on the vehicle at the point where the cable enters the vehicle.



4. Route the control switch cable to the ECU box and secure it with cable clamps.

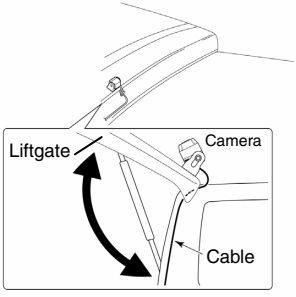
⚠ CAUTION

- Route the cable so that it does not obstruct vehicle operation.



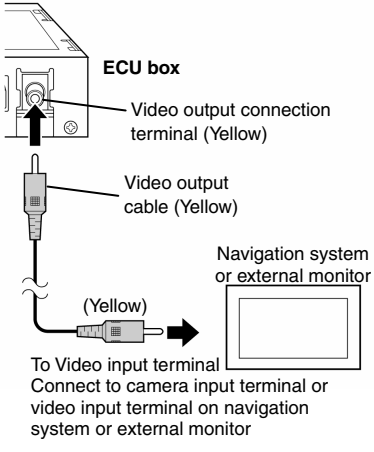
• Confirmation of camera installation and cable routing

Make sure the camera and cable do not interfere when operating the liftgate, and that the cable does not contact the edge of the liftgate.



• Connecting Video Cable

Connect the video output cable to the camera input terminal or video input terminal on the navigation system or external monitor. (Read the separate instruction manuals for these devices to connect them correctly.)


ECU box
Video output connection terminal (Yellow)
Video output cable (Yellow)
Navigation system or external monitor
(Yellow)
To Video input terminal
Connect to camera input terminal or video input terminal on navigation system or external monitor

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GUIDE LINE ADJUSTMENT AFTER REAR VIEW CAMERA INSTALLATION

The guide lines on the screen need to be aligned with the image taken from the rear view camera (and other reference items) so that the system is correctly matched to the vehicle.
There are seven reference items to align including,
(1) View-from-top angle alignment
(2) Center-line alignment
(3) View-from-top height alignment
(4) Left/right guide lines alignment
(5) Right guide line alignment
(6) 3 ft. guide line alignment
(7) 1.5 ft. guide line alignment
During the alignment process, the screen automatically changes to the view-from-top and all the alignment parameters are automatically reflected in the digitally corrected rear view.

⚠ CAUTION

- Install the Rear View Back up Camera system in a safe place away from other vehicles and pedestrians. Set the emergency brake and block the wheels so that the vehicle does not move while aligning the system. If the vehicle deviates and the alignment is done incorrectly, it could result in an accident.

Preparation before performing alignment procedure

The following auxiliary items are required for alignment. Prepare them in advance.

1. Locate an area with parallel lines painted on a tarmac or similar flat surface such as a parking lot.
2. Prepare markers to indicate the center line of the vehicle.
3. Prepare two markers to indicate the width of the vehicle.
4. Ruler to measure 1.5 ft. and 3 ft., and two markers.

- Cans or bottles make good markers.(Marking tape for alignment is provided with this Rear View Back up Camera System to indicate 1.5 ft. and 3 ft. guide lines, and the width of the vehicle.)

Park the vehicle parallel to the parking space lines and place markers shown in the right figure:

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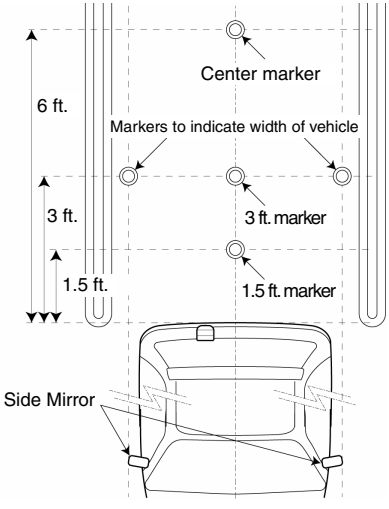
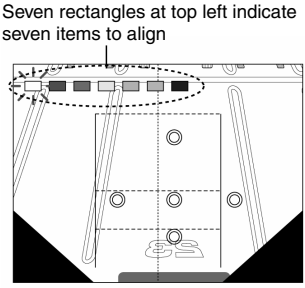


Alignment Mode



Turn the ignition switch to the ACC ON position while depressing the control switch.

- Press and hold the control switch until the screen appears.

View-from-top alignment screen appears.
(Seven rectangles at top left indicate seven items to align.)

If adjustment mode cannot be selected

1. Turn the ignition switch to the ACC ON position while pressing the switch. Press and hold the switch for two seconds or more.
2. Turn the monitor on so that rear view images captured by the camera can be seen.
   - If any view is not displayed on the screen, turn the ignition switch to the ON position (without starting the engine) and set the shift lever to R (reverse).
   - Depending on the navigation system or external monitor connected to this accessory, the operation can be interlocked with the reverse gear.
   - If the vehicle is left with the ignition switch in the ON position for long periods of time, the battery power could be depleted.

⚠ CAUTION

- If no picture appears on the screen, turn the monitor power on and change the input selector so that the screen of the rear view back up camera system appears. (Check the connection between video output terminal of ECU box and the camera or video input terminal of the monitor.) (Refer to the manual for the monitor)

Notes

- *If no alignment procedure is commenced for three minutes or longer, the system turns the image off and the set parameters will NOT be stored.*
- *Do not leave the ignition switch in the ACC ON position for a long period of time as it could deplete the battery power.*
- *Black triangles at the bottom on both sides appear when the display mode is set to View-from-top. This does not indicate a malfunction. In addition, depending on the center-line alignment position, the size of each of the triangles could differ.*

Alignment

Note: Follow the alignment procedures in the indicated order from 1 to 7. Each of the below alignment steps is indicated by a flashing rectangle corresponding to each alignment item, moving from left to right with each rectangle having a different color.

1. **View-from-top angle alignment (White)**
2. **Center-line alignment (Red)**
3. **View-from-top height alignment (Violet)**
4. **Left/right guide lines alignment (Yellow)**
5. **Right guide line alignment (Green)**
6. **3 ft. guide line alignment (Light Blue)**
7. **1.5 ft. guide line alignment (Blue)**

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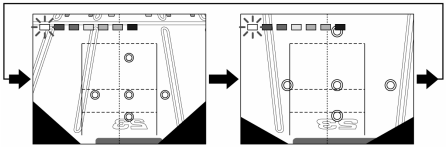
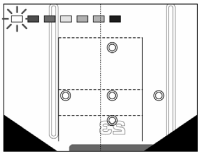
1. View-from-top angle alignment (flashing white rectangle)

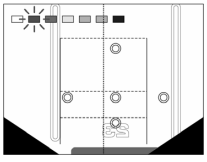
1-1. Each time the control switch is pressed, the angle increases. Continuously pressing the control switch returns the alignment to the original angle.



Set the parking space lines parallel to the lines on the screen.

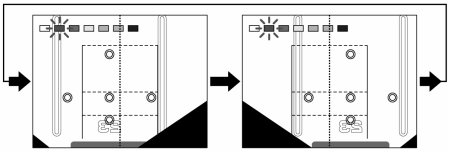


1-2. Press and hold the control switch for more than two seconds.
The view-from-top angle alignment is now set and the screen changes to the center-line alignment setting. The center guide line is shown in red on the screen.

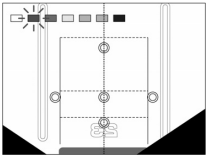


2. Center-line alignment (flashing red rectangle)

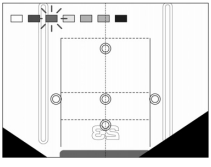
2-1. Each time the control switch is pressed, the screen moves to the right. Continuously pressing the control switch returns the screen to the left.



Align the center guide line with the center markers.

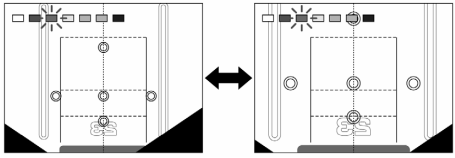


2-2. Press and hold the control switch for more than two seconds.
The center-line alignment is now set and the screen changes to the view-from-top height alignment setting.

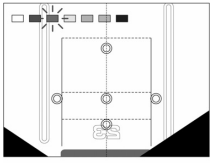


3. View-from-top height alignment (flashing violet rectangle)

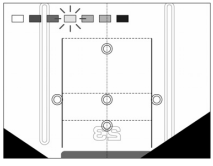
3-1. Press the control switch to change to a higher or lower view-from-top.



Select a view-from-top height so that the markers indicating the width of the vehicle can be seen better on the screen.

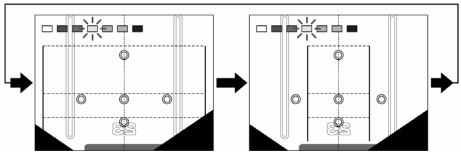


3-2. Press and hold the control switch for more than two seconds.
The view-from-top height alignment is now set and the screen changes to the left/right guide lines alignment setting. Left/right guide lines are indicated in red on the screen.

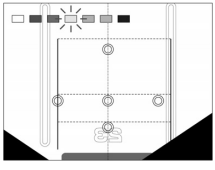


4. Left/right guide lines alignment (flashing yellow rectangle)

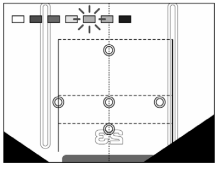
4-1. Each time the control switch is pressed, the width of the guide lines becomes narrower. Continuously pressing the control switch sets the screen at the maximum width.



Set the left guide line to match the left-side marker of the vehicle.

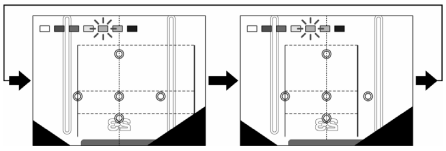


4-2. Press and hold the control switch for more than two seconds.
The left/right guide lines alignment is now set and the screen changes to the right guide line alignment setting. The right guide line is indicated in red on the screen.

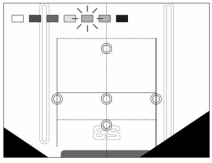


5. Right guide line alignment (flashing green rectangle)

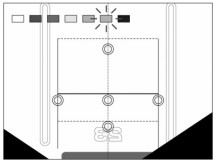
5-1. Each time the control switch is pressed, the right guide line moves towards the center. Continuously pressing the control switch moves the guide line to its maximum right position.



Set the right guide line to match the right-side marker of the vehicle.

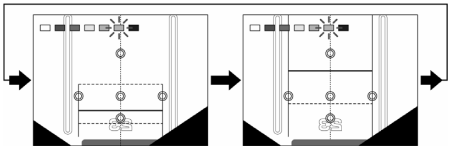


5-2. Press and hold the control switch for more than two seconds.
The right guide line alignment is now set and the screen changes to the 3 ft. guide line alignment setting. The 3 ft. guide line is indicated in red on the screen.

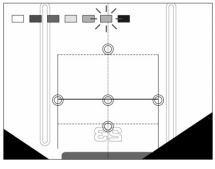


6. 3 ft. guide line alignment (flashing light-blue rectangle)

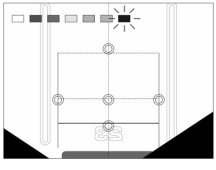
6-1. Each time the control switch is pressed, the 3 ft. guide line moves farther from the vehicle.
Continuously pressing the control switch moves the line farther away until it exceeds a certain range and the line returns to the position closest to the vehicle.



Set the 3 ft. guide line to match the 3 ft. marker.

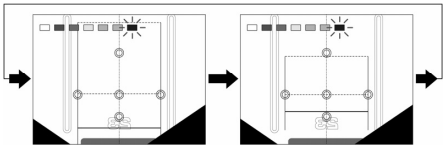


6-2. Press and hold the control switch for more than two seconds.
The 3 ft. guide line alignment is now set and the screen changes to the 1.5 ft. guide line alignment setting. The 1.5 ft. guide line is indicated in red on the screen.

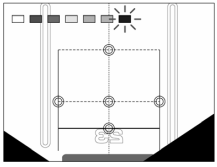


7. 1.5 ft. guide line alignment (flashing blue rectangle)

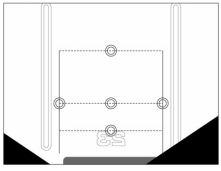
7-1. Each time the control switch is pressed, the 1.5 ft. guide line moves farther from the vehicle. Continuously pressing the control switch moves the line farther away until it exceeds a certain range and the line returns to the position closest to the vehicle.



Set the1.5 ft. guide line to match the 1.5 ft. marker.



7-2. Press and hold the control switch for more than two seconds.
The 1.5 ft. guide line alignment is now set and also 6 ft. guide line alignment is now set automatically and all the alignment settings are now completed.
The screen will disappear after displaying the view-from-top for three seconds.



Note

- *The 6 ft. guide line may not display as a result of camera installation conditions.*

8. After turning the ignition switch off and removing the auxiliary items used for alignment, move the vehicle to a safe place.

REAR VIEW BACK UP CAMERA DISPLAY AND SWITCHING DISPLAY MODES

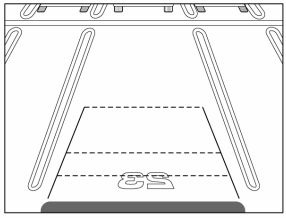
Preparation prior to use

Make sure the ignition switch is in the ON or ACC position.

⚠ CAUTION

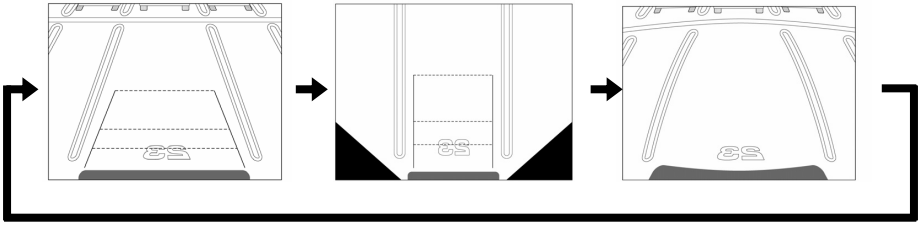
- If the image turns off automatically after the guide line alignment, turn the ignition switch off, then to the ACC ON or ON position prior to the following procedure.

1. Turn the monitor on and select the input mode switch to view the image from the rear view camera on the screen. (Refer to the instruction manual for the monitor for details.)
2. Set the selector shift lever to R (reverse).
   A digitally corrected rear view will be visible on the screen.



3. Press the control switch to change the display mode.

Digitally corrected rear view → View-from-top → Standard view



⚠ CAUTION

- The rear view back up camera system is a devise designed only to assist the driver. The driver remains responsible for being aware of and confirming the vehicle surroundings. For safety reasons, it is important for the driver to take extra precautions when backing up.

Notes

- *After the ignition switch is turned from off to the ACC ON or ON position, a digitally corrected rear view is displayed on the screen first.*
- *When changing the display mode, the selected display mode remains until the ignition switch is turned off.*
- *The rear view of the vehicle is not displayed while the vehicle is not in reverse.*

Need help? Call
1-800-421-5013